

ABSTRACT

A multi-layer insulation (MLI) blanket with enhanced contamination inhibiting properties and a method for inhibiting the formation of organic residues on the outer surface of a MLI blanket are provided. In one embodiment, a MLI blanket (10) attachable to a spacecraft or other structure includes a plurality of metallized layers (20, 30, 40, 50) separated by mesh layers (60, 62, 64). An anti-contamination coating (80) comprised of a photocatalytic material is disposed between a high emittance layer (70) that overlies the outer surface (20A) of the outer metallized layer (20) and an outer electrically conductive layer (90). When exposed to ultraviolet or near-ultraviolet radiation components present in solar radiation, the anti-contamination coating (80) catalyzes the breakdown of organic residues on the outer surface of the MLI blanket (10) thereby maintaining the reflective properties of the MLI blanket (10) and ensuring that solar absorptance of the MLI blanket (10) is maintained at or below an acceptable threshold level.